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PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Bookbinder, Dana C et al.	
Serial No:	09/941383	Examiner: Hoffman, John M
Filing Date:	08/28/2001	Group Art Unit: 1731
Title:	FURNACE ASSEMBLY FOR HEATING AN OPTICAL WAVEGUIDE PREFORM	

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BRIEF ON APPEAL

This Brief supports the appeal to the Board of Patent Appeals and Interferences from the final rejection dated January 19, 2005, in the application listed above. Appellant filed the Notice of Appeal on May 4, 2005. Appellant now submits this Brief as required by 37 C.F.R. § 41.37.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Corning Incorporated.

II. RELATED APPEALS AND INTERFERENCES

With respect to the related appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences.

III. STATUS OF CLAIMS

On May 4, 2005 appellant appealed from the final rejections of claims 1-12, 38-43, 47, and 48, which were rejected in the final Office Action dated January 19, 2005. Those are

the pending claims that are the subject of this Appeal and are set forth in the attached Appendix.

IV. STATUS OF AMENDMENTS

There are no amendments that have not been entered by the Examiner. The last amendment to the claims was made in the Amendment and Response which was filed on December 21, 2004.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 relates to a furnace assembly for heating an optical waveguide preform, the furnace assembly comprising a furnace including:

a muffle tube 110 defining a furnace passage 111, the furnace passage 111 having a length extending from a first end to a second end;

a top plate 120 mounted and resting on a terminal end of the muffle tube 110 at the second end and an central opening 122 defined in the top plate 120, said top plate 120 including a lower surface in contact with the terminal end and an upper surface opposite the lower surface; and

a heating device 118 operative to heat the furnace passage 111;

a process gas supply 150 providing a process gas to the furnace passage 111;

a handle 130 disposed in the furnace passage 111, said handle including a coupling portion 134 which is adapted to hold the waveguide preform 5 and the handle 130 extends through the exit opening;

a flow shield 160 positioned between the first and second ends and extending across the furnace passage 111 between the handle 130 and the muffle tube 110, the flow shield arranged and configured to restrict flow of the process gas from the first end to the second end of the furnace passage; and

a washer 174 mounted about the handle, contacting the upper surface of the top plate 120 and covering a portion of the central opening 122. (See Fig. 1 and page 4, line 25 through page 6, line 25.).

Claim 41 relates to a furnace assembly adapted to heat an optical fiber preform 5, comprising:

a muffle 110 tube defining a furnace passage 111, the passage including a length

extending from an inlet opening 112 at a first end to an outlet opening 114 at a second end, and a flange 116 on the second end,

a top plate 120 mounted on a top of the muffle tube 110 and covering the second end and the outlet opening 114 and including a central opening 122 therein, said top plate including a lower surface in contact with the flange and an upper surface opposed thereto,

a process gas supply 150 adapted to supply a process gas in the passage directed from the first end to the second end,

a handle 130 adapted to suspend the preform 5 within the passage,

a flow shield 160 positioned in the passage between the preform 5 and the second end and extending between the handle 130 and the muffle tube 110, wherein the flow shield 160 is configured to enable restriction of flow of the process gas, and

a washer 174 mounted about the handle 130 and in contact with the upper surface of the top plate 120 and covering a portion of the central opening 122 (Fig. 1 and page 4, line 25 through page 6, line 25).

Claim 42 relates to a furnace assembly adapted to heat an optical fiber preform, said assembly comprising:

a muffle tube 110 including a tubular body and a passage 111;

a top plate 120 having a lower surface mounted in contact with an end of the muffle tube 110 and an upper surface opposite the lower surface, the top plate 120 extending radially inward from the tubular body 110 and including a central opening 122 therein;

a gas supply 150for supplying process gas to the passage;

a handle 130 traversing the central opening 122 in the top plate 120 and adapted to suspend the preform in the passage from a coupling portion 134 formed on a lower end of the handle 130;

a flow shield 160 positioned in the passage between the coupling portion 134 and the top plate 120, wherein the flow shield 160 is configured such that a radial peripheral edge of the flow shield 160 and a cylindrical inside surface of the muffle tube 110 form a marginal gap having a width of between 2.5 and 25 mm to enable restriction of the gas; and

a washer 174 positioned over the central opening 122 and in contact with the upper surface of the top plate 120, the handle 130 extending through the washer 174 wherein the washer 174 inhibits air entry into the passage (see Fig. 1 and page 4, line 25 through page 6, line 25).

Claim 47 relates to a furnace assembly for heating an optical waveguide preform, the furnace assembly comprising:

a furnace 100 including:

a muffle tube 110 defining a furnace passage 111, the furnace passage 111 having a length extending from a first end to a second end;

a top plate 120 mounted on a terminal end of the muffle tube 110 at the second end, said top plate 120 including a lower surface, an upper surface opposed to the first surface, and a central opening 122 defined in the top plate 120; and

a heating device 118 operative to heat the furnace passage;

a process gas supply 150 providing a process gas to the furnace passage 111;

a handle 130 disposed in the furnace passage 111, said handle 130 including a coupling portion 134 which is adapted to hold the waveguide preform 5 and the handle extends through the central opening 122;

a flow shield 160 positioned between the first and second ends and extending across the furnace passage 111 between the handle 130 and the muffle tube 110, the flow shield 160 arranged and configured to restrict flow of the process gas from the first end to the second end of the furnace passage 111; and

a plurality of washers 172, 174 mounted above the top plate 120 and about the handle 130 and covering a portion of the exit opening wherein at least one of the washers 174 is in contact with the top plate 120 and at least two of the washers are in contact with each other. (See Fig. 1 and page 4, line 25 through page 6, line 25.)

Claim 48 relates to a furnace assembly, comprising:

a furnace 100 including:

a muffle tube 110 defining a furnace passage 111, the furnace passage having a length extending from a first end to a second end;

a top plate 120 mounted on top of the muffle tube 110 at the second end, the top plate having a central opening 122 formed therein; and

a heating device 118 operative to heat the furnace passage 111;

a process gas supply 150 providing a process gas to the furnace passage 111;

a handle 130 disposed in the furnace passage 111 and extending through the central opening 122, the handle 130 including a coupling portion 134;

a flow shield 160 mounted on the handle 130 and positioned between the first and

second ends and extending across the furnace passage 111 between the handle 130 and the muffle tube 110, the flow shield 160 arranged and configured to restrict flow of the process gas from the first end to the second end of the furnace passage;

a cylindrical spacer 162 mounted about the handle 130 and spacing the flow shield 160 from the coupling portion 134; and

a plurality of washers 172, 174 mounted above the top plate 120 and about the handle 130 and at least one washer 174 is in contact with the top plate 120 and is covering a portion of the central opening 122 and at least two of the plurality of washers 172, 174 are in contact with each other. (See Fig. 1 and page 4, line 25 through page 6, line 25.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The claims are currently rejected by the Patent Office as follows:

1) Claims 1-12, 38-43, and 47-48 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2000-44269 (or Koaizawa 6,543,257) in view of Drouart 5931984, Kaiser 4030901, Ryoji JP 02212325, Gilbreath 6447017, Haney 4347069, and Collins 5408865.

VII. ARGUMENT

The rejection of claims 1-12, 38-43, and 47-48 under 35 U.S.C. §103(a) as being unpatentable over JP 2000-44269 (or Koaizawa 6,543,257) in view of Drouart 5931984, Kaiser 4030901, Ryoji JP 02212325, Gilbreath 6447017, Haney 4347069, and Collins 5408865 is improper

A proper *prima facie* showing of obviousness requires the examiner to satisfy three requirements. First, the prior art relied upon, coupled with knowledge generally available to one of ordinary skill in the art, must contain some suggestion which would have motivated the skilled artisan to combine references. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Second, the examiner must show that, at the time the invention was made, the proposed modification had a reasonable expectation of success. See Amgen v. Chugai Pharm. Co., 927 F.2d 1200, 1209, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991). Finally, the combination of references must teach or suggest each and every limitation of the claimed invention. See In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

According to the Examiner, "Gilbreath, Haney and Collins are cited as evidence that o-rings and washers are equivalent sealing devices." Applicants respectfully disagree that these three references indicate that o-rings and washers are "equivalent".

Contrary to the Examiner's assertions, none of the references cited by the Examiner expressly indicate that o-rings and/or washers are equivalents. Simply because two items are mentioned in the same sentence does not mean they are "equivalent".

As further evidence that o-rings are not equivalent to washers, applicants submitted definitions of o-ring and washer from Websters Third New International Dictionary (copyright 1993). O-ring is defined as "a flat ring of synthetic rubber used as a gasket in sealing a joint against high pressures." Washer is defined as "any of various flat thin rings or perforated plates (as of metal or leather) used in joints for assemblies to ensure tightness, prevent leakage, or relieve friction." The definition of o-ring is consistent with the use of the o-ring in Koaizawa, i.e., as a sealing gasket. Clearly, a washer is not the equivalent of an o-ring, as a washer does not have t o seal against high pressure.

According to the Examiner, "the invention as claimed is known as per Koaizawa Figure 1, in columns 3-4. However at column 4, lines 50-62 Koaizawa discloses an o-ring rather than the claimed washer. In view of the six secondary references, it would have been obvious to place a sealing washer over the Koaizawa plate since such is a known equivalent to an o-ring seal." Thus, the Examiner, in his rejection of all of the claims of record, utilizes Fig. 1 as his primary reference and suggests that there is motivation in Koaizawa and the other prior art references to modify Fig. 1 of Koaizawa as defined by applicants claims. Applicants respectfully disagree.

First, as explained above, washers are not the equivalent of an o-ring seal. There is no teaching in any of the references cited that would motivate one of skill in the art to substitute a washer over the Koaizawa plate in replacement for the o-ring seal which is located in the shaft passage of Koaizawa. Further, applicants submit that, even if the references were combinable as the Examiner suggests, such a combination would not result in applicants' claimed invention. In particular, the passage referred to by the Examiner in Koaizawa (column 4, line 50-62) indicates that "It has been proposed to perform the sealing by providing a seal member made of an o-ring in the elevating shaft passage of the upper lid 31 under which the elevating shaft 41 passes." Note first that the language in this passage is consistent with the definition of O-ring, that is, the purpose of the ring is to seal against high

pressures. One would not be motivated to substitute the washer for the o-ring, because the o-ring seals against high pressures, while washers do not. Also, if one were to substitute a washer for the o-ring in Koaizawa Figure 1 apparatus, that washer would have to be disposed within the shaft passage of the lid 31. However, rather than merely substituting a washer in the same location as the o-ring of Koaizawa, the Examiner is suggesting that it would have been obvious to place a sealing washer, not in the shaft passage of the upper lid as Koaizawa actually indicates, but over the Koaizawa plate. There is clearly no suggestion of placing either a washer or an o-ring in this location in Koaizawa.

Applicants submit that there is no motivation to supply a washer over the Koaizawa plate instead of the O-ring which is employed. Applicants' claim requires a washer mounted about the handle, contacting the upper surface of the top plate and covering a portion of the central opening. Even if, assuming arguendo, one would consider using a washer in place of the o-ring utilized by Koaizawa, substitution of that washer in place of the o-ring in Koaizawa would not result in applicants' invention.

In addition, it should be recognized that the intended function (reliable sealing) of Koaizawa would be destroyed if the modification proposed by the Examiner is adapted. The Examiner indicated that applicants did not provide evidence as to how the intended function of Koaizawa would be destroyed. Repeatedly throughout Koaizawa, upper lid is described as being reliably sealed (see, for example, column 7, lines 27-30 and 44-53, column 8, lines 25-33, column 16, lines 20-25, column 18, lines 40-58, and column 27, lines 43-50). Ryoji is a leaky system allowing some exhaust gas to exit around the washer.

The Examiner indicates that feature 5 in Koaizawa is the flow shield. Applicants respectfully disagree that feature 5 in Koaizawa can be construed to be a flow shield. A flow shield as that term is employed in applicants specification is a device which is arranged and configured to restrict flow of the process gas from the first end to the second end of the furnace passage (see for example, page 2, lines 10-11)

The perform holder 5 in Koaizama clearly does not extend across the furnace enough to restrict flow of the process gas, and in fact only serves to hold the optical fiber perform in place. The Examiner states that, alternatively, "Koaizawa teaches to have the same furnace as figure 1 with the shield of figures 3-4. See Col 19, line 28. In other words: altering the known figure 1 apparatus to include the shield 28 of figures 3-4." Applicants disagree that Col 19 line 28 suggests anything of the sort. In fact, what col 19, lines 25-30 actually

indicates is that in Fig 3 and 4, parts given the same reference numerals as the apparatus illustrated in Fig. 1 and 2 are the same as or similar to the parts illustrated in Fig. 1 and 2. There is no shield 28 shown in Fig. 1, so there is no suggestion in this passage to use a shield 28 in the apparatus shown in Fig. 1. In other words, with respect to the shield 28 in Fig. 3, there is no similar part in Fig. 1, so the passage referred to by the Examiner is irrelevant.

For all of the above reasons, it is submitted that claims 1, 41, 42, 47, and 48 are in condition for allowance.

With respect to claim 2, there is clearly no formation of an isolation chamber 102 between the perform holder 5 in Koaizama and the second end.

With respect to claim 3, there is clearly no mention or suggestion of maintaining a the gap between the peripheral edge and the muffle define a marginal gap between 2.5mm and 25mm. The Examiner indicates that "col. 24, lines 60-62 indicates that the means-cum-insulating means (of which 28 is one) is between 5-20 mm". However, as explained above, there is clearly no suggestion of using element 28 in the apparatus disclosed in Fig 1, as the Examiner proposes in his rejection.

There is no mention of suggestion in the prior art cited of having the flow shield have a thickness of greater than 6mm, as defined by claim 4.

With respect to claim 5, there is no mention or suggestion in any of the references cited of having the handle extend through the top plate and the flow shield disposed between the coupling portion and the top plate. In fact, the Examiner actually takes the position in his rejection that the coupling portion is the flow shield. Coupling portion is defined in applicants' specification as the part that is arranged and configured to hold and suspend the optical fiber preform (see for example page 5, lines 5-7 of applicants' specification). Clearly that would equate to feature 5 in Koaizawa, as feature 5 clearly is configured to hold the preform. This clearly demonstrates the problem with this rejection, that is, the flow shield obviously cannot be positioned between itself and something else. Clearly, the preform holder in Koaizawa is not a flow shield.

With respect to claim 7, the Examiner indicates that we should see Fig. 10, but he does not indicate why one should see Fig. 10. Applicants respectfully submit that nothing in Fig 10 would motivate one of skill in the art to modify Fig.1 of Koaizawa to include a spacer which separates the flow shield from the coupling portion. In fact, in the Examiner's rejection, what the Examiner refers to as a flow shield is in fact a coupling portion, not a flow

shield. Likewise with respect to claim 8, which further indicates that the spacing distance should be at least 50 mm. Applicants submit that one cannot space the perform holder 5 in Fig. 1 50 mm from itself.

With respect to claim 9, the Examiner indicates "see column 22, lines 18-19". Again, this passage refers to insulating means 28 in Fig. 6, and as explained above there is no motivation to use insulating means 28 in the Fig. 1 embodiment. Nor is there any mention of combining the teachings of the Fig. 6 embodiment with that of the prior art Fig. 1 embodiment.

With respect to claims 39-40, the Examiner indicates to "see Figure 20". Applicants have seen Fig. 20, and submit that there is nothing in Fig. 20 that suggests that Fig. 1 should be modified. Further, Fig. 20 lacks anything that could possibly be construed to be a top plate. Further, there does not appear to be either an o-ring or a top plate in Fig. 20.

For at least the reasons given above, Appellants assert that the Examiner has failed to make a *prima facie* case of obviousness, and that the Board should reverse the §103 rejection and find that claims 1-12, 38-43, and 47-48, are allowable over the prior art of record.

Conclusion

In conclusion, Appellants request a reversal of each of the grounds of rejection maintained by the Examiner and prompt allowance of the pending claims 1-12, 38-43, and 47-48.

Please charge the fees due under 37 C.F.R. § 1.17(c) to Deposit Account No. 03-3325. If there are any other fees due in connection with the filing of this Brief on Appeal, please charge the fees to our Deposit Account No. 03-3325. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

Dated: July 1, 2005

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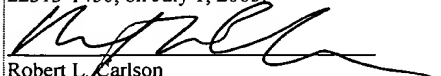

Robert L. Carlson

VIII. CLAIMS APPENDIX

The claims on appeal are as follows:

1. **(rejected)** A furnace assembly for heating an optical waveguide preform, the furnace assembly comprising:

a furnace including:

a muffle tube defining a furnace passage, the furnace passage having a length extending from a first end to a second end;

a top plate mounted and resting on a terminal end of the muffle tube at the second end and an central opening defined in the top plate, said top plate including a lower surface in contact with the terminal end and an upper surface opposite the lower surface; and

a heating device operative to heat the furnace passage;

a process gas supply providing a process gas to the furnace passage;

a handle disposed in the furnace passage, said handle including a coupling portion which is adapted to hold the waveguide preform and the handle extends through the exit opening;

a flow shield positioned between the first and second ends and extending across the furnace passage between the handle and the muffle tube, the flow shield arranged and configured to restrict flow of the process gas from the first end to the second end of the furnace passage; and

a washer mounted about the handle, contacting the upper surface of the top plate and covering a portion of the central opening.

2. **(rejected)** The furnace assembly of Claim 1 wherein the flow shield defines an isolation chamber between the flow shield and the second end.

3. **(rejected)** The furnace assembly of Claim 1 wherein the flow shield has a peripheral edge adjacent the muffle, and the peripheral edge and the muffle define a marginal gap therebetween having a width of between about 2.5 mm and 25 mm.

4. **(rejected)** The furnace assembly of Claim 1 wherein the flow shield has a thickness

greater than about 6 mm.

5. **(rejected)** The furnace assembly of Claim 1 wherein:
the handle extends through the top plate at the second end of the passage; and
the flow shield is disposed between the coupling portion and the top plate.

6. **(rejected)** The furnace assembly of Claim 1 wherein the flow shield is coupled to the handle.

7. **(rejected)** The furnace assembly of Claim 1 wherein the handle includes a spacer longitudinally separating the flow shield from the coupling portion.

8. **(rejected)** The furnace assembly of Claim 7 wherein the spacer separates the flow shield from the preform a distance of at least 50 mm.

9. **(rejected)** The furnace assembly of Claim 1 wherein the flow shield is formed of at least one material selected from the group consisting of fused silica, fused quartz, ceramic, silicon carbide, ceramic coated fused silica, and ceramic coated fused quartz, and combinations thereof.

10. **(rejected)** The furnace assembly of Claim 1 wherein the handle is formed of at least one material selected from the group consisting of fused silica, fused quartz, ceramic, ceramic coated fused silica, and ceramic coated fused quartz, and combinations thereof.

11. **(rejected)** The furnace assembly of Claim 1 wherein the furnace is a waveguide preform holding furnace.

12. **(rejected)** The furnace assembly of Claim 1 wherein the furnace is a waveguide preform consolidation furnace.

13. **(withdrawn)** The furnace assembly of Claim 1 further comprising a second flow shield extending across the furnace passage between the handle and the muffle, the first and

second flow shields being arranged and configured to restrict flow of the process gas from the first end to the second end, wherein the second flow shield is spaced apart from the first flow shield along the length of the furnace passage.

14. **(withdrawn)** The furnace assembly of Claim 13 including a spacer positioned between the first and second flow shields.

15. **(withdrawn)** The furnace assembly of Claim 1 further comprising a second flow shield extending across the furnace passage between the handle and the muffle, the first and second flow shields being arranged and configured to restrict flow of the process gas from the first end to the second end, wherein the second flow shield is located substantially immediately adjacent the first flow shield.

16. **(withdrawn)** The furnace assembly of Claim 1 wherein:
the furnace includes an end wall;
the flow shield is spaced apart from the end wall and connected thereto by at least one connecting member; and
the handle is free to move relative to the flow shield.

17. **(withdrawn)** The furnace assembly of Claim 1 including a longitudinally extending shield collar extending from the flow shield toward one of the first and second ends, the shield collar including an outer surface facing the muffle, wherein the outer surface and the muffle define a lengthwise restrictive flow passage therebetween.

18. **(withdrawn)** The furnace assembly of Claim 17 wherein the restrictive flow passage has a gap dimension between the outer face and the muffle of between about 2.5 and 25 mm.

19. **(withdrawn)** The furnace assembly of Claim 17 wherein the restrictive passage has a length of between about 25 and 250 mm.

20. **(withdrawn)** The furnace assembly of Claim 17 including a longitudinally extending second shield collar disposed within the first shield collar and including an inner surface

facing the handle, wherein the inner surface and the handle define a lengthwise second restrictive passage therebetween.

21. **(withdrawn)** The furnace assembly of Claim 20 wherein the second restrictive passage has a gap width between the inner surface and the handle of between about 1 and 20 mm.

22. **(withdrawn)** The furnace assembly of Claim 20 wherein the second restrictive passage has a length of between about 25 and 250 mm.

23. **(withdrawn)** The furnace assembly of Claim 20 wherein:
the furnace includes an end wall and an exit opening defined in the end wall;
the handle extends through the exit opening; and
the second shield collar extends from the end wall into the furnace passage and surrounds the exit opening.

24. **(withdrawn)** The furnace assembly of Claim 1 wherein:
the furnace includes an end wall and an exit opening defined in the end wall; and
the flow shield comprises a shield collar extending from the end wall into the furnace passage and surrounding the exit opening.

25. **(withdrawn)** The furnace assembly of Claim 24 wherein the shield collar forms a lengthwise restrictive flow passage with at least one of the muffle and the handle.

26. **(withdrawn)** The furnace assembly of Claim 25 wherein the handle extends through the exit opening and the shield collar and the muffle define a first lengthwise restrictive flow passage therebetween and the shield collar and the handle define a second lengthwise restrictive flow passage therebetween.

27. **(canceled)**

28. **(canceled)**

29. **(withdrawn)** The furnace assembly of Claim 1 including:
a supply of a second process gas; and
a gas port in fluid communication with the second process gas supply and positioned to direct the second process gas into the furnace passage adjacent a side of the flow shield opposite the preform.

30. **(withdrawn)** The furnace assembly of Claim 29 wherein the first and second process gases are the same.

31. **(withdrawn)** The furnace assembly of Claim 30 wherein the first and second process gas supplies are the same.

32. **(withdrawn)** The furnace assembly of Claim 29 wherein the second process gas is selected from the group consisting of Ar, He, and N_2, and mixtures thereof.

33. **(withdrawn)** The furnace assembly of Claim 29 wherein the gas port is formed in the handle, the handle further comprising a handle passage extending through the handle and fluidly connecting the second process gas supply and the gas port.

34. **(withdrawn)** The furnace assembly of Claim 33 further comprising a second flow shield extending across the furnace passage between the handle and the muffle, the first and second flow shields being arranged and configured to restrict flow of the first process gas from the first end to the second end, wherein:
the second flow shield is spaced apart from the first flow shield along the length of the furnace passage; and
the gas port is positioned between the first and second flow shields.

35. **(withdrawn)** The furnace assembly of Claim 1 including a processing gas port in fluid communication with the process gas supply and positioned to direct the process gas into the furnace passage adjacent a side of the flow shield closest to the preform.

36. **(withdrawn)** The furnace assembly of Claim 1 wherein the handle is free to move relative to the flow shield and the muffle includes a ledge adapted to support the flow shield.

37. **(withdrawn)** The furnace assembly of Claim 35 wherein the process gas is selected from the group consisting of Cl_2, SiF_4, CF_4, SF_6, NF_3, $GeCl_4$, $SiCl_4$, $POCl_3$, BCl_3, BF_3, PCl_3, C_2F_6, and CO, and mixtures thereof.

38. **(rejected)** The furnace assembly of Claim 1 wherein the handle is movable relative to the muffle and the flow shield is mounted on the handle for movement therewith.

39. **(rejected)** The furnace assembly of Claim 38 including a drive assembly operable to translate the handle and the flow shield relative to the muffle.

40. **(rejected)** The furnace assembly of Claim 38 including a drive assembly operable to rotate the handle and the flow shield relative to the muffle.

41. **(rejected)** A furnace assembly adapted to heat an optical fiber preform, comprising:

a muffle tube defining a furnace passage, the passage including a length extending from an inlet opening at a first end to an outlet opening at a second end, and a flange on the second end,

a top plate mounted on a top of the muffle tube and covering the second end and the outlet opening and including an central opening therein, said top plate including a lower surface in contact with the flange and an upper surface opposed thereto,

a process gas supply adapted to supply a process gas in the passage directed from the first end to the second end,

a handle adapted to suspend the preform within the passage,

a flow shield positioned in the passage between the preform and the second end and extending between the handle and the muffle tube, wherein the flow shield is configured to enable restriction of flow of the process gas, and

a washer mounted about the handle and in contact with the upper surface of the top plate and covering a portion of the central opening.

42. **(rejected)** A furnace assembly adapted to heat an optical fiber preform, said assembly comprising:

a muffle tube including a tubular body and a passage;

a top plate having a lower surface mounted in contact with an end of the muffle tube and an upper surface opposite the lower surface, the top plate extending radially inward from the tubular body and including a central opening therein;

a gas supply for supplying process gas to the passage;

a handle traversing the central opening in the top plate and adapted to suspend the preform in the passage from a coupling portion formed on a lower end of the handle; and

a flow shield positioned in the passage between the coupling portion and the top plate, wherein the flow shield is configured such that a radial peripheral edge of the flow shield and a cylindrical inside surface of the muffle tube form a marginal gap having a width of between 2.5 and 25 mm to enable restriction of the gas; and

a washer positioned over the central opening and in contact with the upper surface of the top plate, the handle extending through the washer wherein the washer inhibits air entry into the passage.

43. **(canceled)**

44. **(withdrawn)** A method of manufacturing an optical fiber preform, comprising the steps of:

flowing a process gas in a furnace passage of a muffle tube from a first end to a second end, the furnace passage having the optical fiber preform mounted therein, and

restricting flow of the process gas using a flow shield positioned in the passage between the preform and the second end and extending between a handle and the muffle tube.

45. **(withdrawn)** The method of Claim 44 wherein the process gas is flowed through the muffle tube at a rate of no more than 30 slpm.

46. **(withdrawn)** The method of Claim 44 wherein the process gas is flowed through the muffle tube at a rate of no more than 10 slpm.

47. **(rejected)** A furnace assembly for heating an optical waveguide preform, the furnace assembly comprising:

a furnace including:

a muffle tube defining a furnace passage, the furnace passage having a length extending from a first end to a second end;

a top plate mounted on a terminal end of the muffle tube at the second end, said top plate including a lower surface, an upper surface opposed to the first surface, and a central opening defined in the top plate; and

a heating device operative to heat the furnace passage;

a process gas supply providing a process gas to the furnace passage;

a handle disposed in the furnace passage, said handle including a coupling portion which is adapted to hold the waveguide preform and the handle extends through the central opening;

a flow shield positioned between the first and second ends and extending across the furnace passage between the handle and the muffle tube, the flow shield arranged and configured to restrict flow of the process gas from the first end to the second end of the furnace passage; and

a plurality of washers mounted above the top plate and about the handle and covering a portion of the exit opening wherein at least one of the washers is in contact with the top plate and at least two of the washers are in contact with each other.

48. **(rejected)** A furnace assembly, comprising:

a furnace including:

a muffle tube defining a furnace passage, the furnace passage having a length extending from a first end to a second end;

a top plate mounted on top of the muffle tube at the second end, the top plate having a central opening formed therein; and

a heating device operative to heat the furnace passage;

a process gas supply providing a process gas to the furnace passage;

a handle disposed in the furnace passage and extending through the central opening, the handle including a coupling portion;

a flow shield mounted on the handle and positioned between the first and second ends

and extending across the furnace passage between the handle and the muffle tube, the flow shield arranged and configured to restrict flow of the process gas from the first end to the second end of the furnace passage;

a cylindrical spacer mounted about the handle and spacing the flow shield from the coupling portion; and

a plurality of washers mounted above the top plate and about the handle and at least one washer is in contact with the top plate and is covering a portion of the central opening and at least two of the plurality of washers are in contact with each other.

IX. EVIDENCE APPENDIX

Definitions of o-ring and washer from Websters Third New International Dictionary (copyright 1993) were submitted with Applicant's amendment dated March 21, 2005. Evidence was entered by the Examiner on March 29, 2005, as stated on the Advisory Action mailed March 31, 2005.

X. RELATED PROCEEDINGS APPENDIX

None

Webster's Third New International Dictionary

OF THE ENGLISH LANGUAGE

UNABRIDGED

A GENUINE MERRIAM-WEBSTER

The name *Webster* alone is no guarantee of excellence. It is used by a number of publishers and may serve mainly to mislead an unwary buyer.

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WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY
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independent thought, direct insight, or constructive imagination : CREATIVE, FERTILE, GERMINAL, INVENTIVE ⟨esteemed as an ~ American composer⟩ **c** : constituting the product or model from which copies are made ⟨found the ~ manuscript, of which copies ... long been current⟩ *syn* see NEW

original bid *n* : the first bid made in the auction in a card game — called also *opening bid*

original bill *n* : the initial bill of an equity proceeding not already before the court between the same parties standing in the same interests and consisting of a statement of the cause of complaint and petition for relief

original contract *n* : SOCIAL CONTRACT

original cost *n* **1** : HISTORICAL COST 2 **2** *in public utility practice* : the cost of a property to that owner who first devoted it to public service **3** *in real estate practice* : the cost of a property to a present owner regardless of cost to a prior owner

original gum *n* : the intact adhesive gum on a postage stamp considered as evidence of the stamp's mint condition — abbr. *O.G.*; called also *full gum*

orig·i·nal·i·ty \ə,rijə'nalədē, -lədē, -i\ *n* -ES [F *originalité*, fr. *original*, adj. + *-ité* -ity] **1** *archaic* : the quality or state of being authentic or genuine **2 a** : freshness of aspect or design : independence or newness of style or character ⟨modern Brazilian architecture ... is full of ~ and, above all, vitality —William Tate⟩ **b** : the power of independent thought or perception : capacity for constructive imagination or significant innovation : creative ability ⟨the directness of blunt truth and ... a bardic ~ and vigor —C.B.Taylor⟩ **3 a** *patent law* : creation of a useful device, design, or process not before known or created **b** *copyright law* : novelty in the form of expression rather than in subject matter

original jurisdiction *n* : jurisdiction of first instance : authority of a court that takes cognizance of a controversy at the inception of legal proceedings therein

orig·i·nal·ly \ə'rijən°lē, -jnə|, ji\ *adv* **1** *archaic* : by origin or derivation : from the first : INHERENTLY ⟨power ~ the people's⟩ **2** : in the beginning : in the first place : INITIALLY, PRIMARILY **3** : in a fresh or original manner ⟨rebinding of single books demanding ... ~ designed covers —Edith Diehl⟩

original minor scale *n* : NATURAL MINOR SCALE

original package doctrine *n* : a doctrine whereby goods and commodities imported from one state of the U.S. into another or from a foreign country are usu. protected from being subject to the laws of the state of importation until sale is made by the importer so long as they are contained in the original unbroken individual package, container, or receptacle accepted from the shipper by the carrier and delivered in the same form to the importer

original process *n* : an original writ or summons issued by authority of a court as the foundation of and first step in a lawsuit, including always a notice to the defendant when to appear to make his defense and often an order to arrest the defendant, seize or attach his property, or garnishee a claim due from a third person to the defendant or an order that the defendant do or refrain from doing a specified act or that an officer of the court do a specified act in connection with the suit — distinguished from *final process* and *mesne process*

original sin *n* [ME, trans. of ML *peccatum originale*] : hereditary sin or defect often held in Christian theology to be transmitted from one generation to the next and inherited by each person as a consequence of the original sinful choice made by the first man of the human race — compare ACTUAL SIN

original writ *n* [ME, trans. of ML *breve originale*] **1** : a writ issued under the great seal by which in English law the jurisdiction of the court was laid in beginning personal actions until the summons was substituted by the Judicature Act of 1873 — compare JUDICIAL WRIT, PRAECIPE **2** : ORIGINAL PROCESS

orig·i·nant \ə'rij(ə)nənt\ *adj* [*origin* + *-ant*] *archaic* : ARISING, ORIGINATING

¹orig·i·nary \-jə,nerē\ *adj* [LL *originarius*, fr. L *origin-*, *origo* origin + *-arius* -ary — more at ORIGIN] **1** *obs* : NATIVE, ORIGINATING **2** *archaic* : constituting a source or cause

²originary *n* -S [LL *originarii* (pl.), fr. pl. of *originarius*, adj.] *obs* : ABORIGINE

orig·i·nate \ə'rijə,nāt, *usu* -ād-+V\ *vb* -ED/-ING/-S [prob. back-formation fr. *origination*] *vt* **1** : to cause the beginning of : give rise to : INITIATE ⟨have *originated* a mass of legend —*Irish Digest*⟩ **2** : to start (a person or thing) on a course or journey (freight is *originated* at the dock) ~ *vi* : to take or have origin : be derived : ARISE, BEGIN, START ⟨a retractor muscle that ~s on the body wall⟩ ⟨the train *originated* in Washington⟩ *syn* see SPRING

originating company *n* : DIRECT-WRITING COMPANY 1

originating notice *or* **originating summons** *n, Eng law* : a notice the service of which begins a legal proceeding — see ADJOURNED SUMMONS

orig·i·na·tion \ə,rijə'nāshən\ *n* -S [L *origination-*, *originatio*, fr. *origin-*, *origo* origin + *-ation-*, *-atio* -ation] **1** *obs* : DERIVATION, ETYMOLOGY **2** : a coming into existence : BEGINNING, RISE ⟨a custom that has its ~ far back in time⟩ **3** : ORIGIN 3 **4** : a bringing into existence : CREATION, INVENTION, MAKING, PRODUCTION ⟨a representative legislature with annual meetings and the ~ of laws —C.G.Bowers⟩

orig·i·na·tive \ə'rijə,nād·iv\ *adj* : having ability to originate : CREATIVE, FERTILE, INVENTIVE ⟨the very greatest and most remarkable ~ geniuses —H.S.Hartfield⟩

orig·i·na·tor \ə'rijə,nād·ə(r), -ātə-\ *n* -S : one that originates

or·i·gin·ist \'ȯrəjənəst, 'är-\ *n* -S **1** *obs* **a** : FOUNDER, ORIGINATOR **b** : a historian of origins **2** : a theorist about origins

origin of coordinates [trans. of F *origine des coordonnées*] : the point of intersection of coordinate axes

ori·hon \'ōrē,hän\ *n* -S [Jap, prob. fr. *ori* fold + *hon* book, volume] : a strip of paper, papyrus, or vellum that is accordion-folded so as to divide the writing or printing which appears on one side into pages or columns and that sometimes has laced-on covers

oril·lon \ȯrē'yō°n\ *or* **oril·lion** \ə'rilyən\ *n* -S [F *orillon*, lit., little ear, dim. of *oreille* ear, fr. L *auricula*, dim. of *auris* ear — more at EAR] *archaic* : a projection built out at the corner of a bastion between flank and face from which to defend the flank

ori·nasal \ōrə, ¦ȯrə, ¦ärə+\ *adj* [*ori-* + *nasal*] **1** : of or relating to the mouth and nose **2** : pronounced (as a French nasal vowel) through both mouth and nose

o ring \'ō-\ *n, usu cap O* : a flat ring of synthetic rubber used as a gasket in sealing a joint against high pressures

ori·no·co crocodile \ˌȯrə¦nō(ˌ)kō-\ *n, usu cap O* [fr. *Orinoco* river, Venezuela] : a ferocious narrow-snouted crocodile (*Crocodylus intermedius*) of the Orinoco river and drainage basin

ori·ole \'ōrē,ōl, 'ȯr- *also* -ēəl\ *n* -S [F *oriol*, fr. OF, fr. ML *oryolus*, fr. L *aureolus* golden, dim. of *aureus* golden, fr. *aurum* gold; akin to Lith *auksas* gold, Arm *os-ki* gold and prob. to *L aurora* dawn — more at EAST] **1** : any of various usu. brightly colored Old World birds constituting the family Oriolidae — see FIG-BIRD, GOLDEN ORIOLE **2** : any of various American birds of the family Icteridae **3** : LEATHER 4

ori·ol·i·dae \ˌ=ē'ōlə,dē, -'ilə-\ *n pl, cap* [NL, fr. *Oriolus*, type genus (fr. ML *oryolus*) + *-idae*] : a family of passerine birds

... contemplation (the steps of the ladder ... in the art of contemplation are called, in technical terms, the degrees of ~ —Evelyn Underhill)

-o·ri·um \'ōrēəm, 'ō- *n suffix, pl* **-o·ri·ums** \-ēəmz\ *or* **-o·ria** \-ēə\ [L, fr. *-orius* -ory] **1** : place for ⟨natatorium⟩ **2** : thing u... for ⟨haustorium⟩

ori·ya \ȯ'rē(y)ə\ *n, pl* **...iya** *or* **oriyas** *usu cap* **1 a** : a chiefly Hindu people of Orissa, India **b** : a member of such people **2** : the Indic language of Orissa

or·khon turk \'ȯr,kän-\ *n, usu cap O&T* [fr. *Orkhon* river, northern Mongolia] : one of a Turkish tribe in the 8th century occupying the drainage of the Orkhon river in north central Mongolia, practicing intensive irrigation agriculture and using a runic alphabet derived from Aramaic

ork·ney \'ȯrknē\ *adj, usu cap* [fr. *Orkney* islands, northeastern Scotland] : of or from the Orkney islands constituting the county of Orkney, Scotland : of the kind or style prevalent in the Orkneys : ORKNEYAN

¹ork·ney·an \'ȯrknēən, ,=ˈ=\ *adj, usu cap* [*Orkney* islands + E *-an* (adj. suffix)] **1** : of, relating to, or characteristic of the Orkney islands **2** : of, relating to, or characteristic of the people of the Orkney islands

²orkneyan \"\ *n* -S *cap* [*Orkney* islands + E *-an* (n. suffix)] : a native or inhabitant of the Orkney islands

orkney skiff *n, usu cap O* : a beamy clinker-built fishing skiff used off the Orkney islands of Scotland

ORL *abbr* owner's risk of leakage

orle \'ȯr(ə)l\ *n* -S [ME, lit., border, hem, fr. *orler* to put a hem on, fr. (assumed) VL *orulare*, fr. (assumed) VL *orula* border, hem, fr. L *ora* border, rim, coast — more at ORAL] **1** *heraldry* **a** : a number of small charges arranged so as to form a border within the edge of the field (an ~ of martlets) **b** : a border within and parallel to but not touching the edge of the field **c** : the wreath or chaplet surmounting or encircling the helmet of a knight and bearing the crest **2** : a narrow fillet at the top of a shaft separating it from the bell of the capital or at the bottom above the molding of the base — **in orle** *adv* : in the form of an orle round the escutcheon leaving the middle of the field vacant or occupied by something else — used of bearings on the shield

or·lean \'ȯrlēən, ȯr'lē(ə)n\ *n* -S [F *orléans*, by folk etymology (influence of *Orléans*, city in north central France) fr. NL *orellana* (specific epithet of *Bixa orellana*), after Francisco de *Orellana* †1549 Span. soldier and explorer who discovered the Amazon on the banks of which annatto is common] : ANNATTO 1a

¹or·lea·nian \(ˌ)ȯ(r)'lēənyən, -ēən\ *adj, usu cap* [New *Orleans*, La. + E *-ian* (adj. suffix)] **1** : of, relating to, or characteristic of New Orleans, La. **2** : of, relating to, or characteristic of the people of New Orleans

²orleanian \"\ *n* -S *cap* [New *Orleans* + E *-ian* (n. suffix)] : a native or resident of New Orleans

or·lean·ist \'ȯ(r)lēənəst, 'ȯ(r)lyən-, ȯ(r)'lē(ə)n-\ *n* -S *usu cap* [F *orléaniste*, fr. *Orléans*, cadet branch of the Valois and Bourbon houses of France + *-iste* -ist] : an adherent or supporter of the Orleans family in its claim to the throne of France on the ground of descent from a younger brother of Louis XIV and usu. of the moderate conservative policies associated with it — compare LEGITIMIST

orl fly \'ȯr(ə)l-\ *n* [E dial. *orl* alder (fr. ME *oyrelle*, alter. of *alder*, *aller*) + E *fly* — more at ALDER] : a British alderfly (*Sialis lutaria*)

or·lo \'ȯr(ˌ)lō\ *n* -S [It, lit., border, hem, fr. *orlare* to hem, fr. (assumed) VL *orulare*] **1** : ORLE 2 **2** : the smooth surface between two flutes of a shaft **3** : the surface between two grooves of a triglyph **4** : a flat plinth of any width

or·loff \'ȯr,läf, -lȯf, ,=ˈ=\ *n* -S *usu cap* [after Count Aleksei Grigorievich *Orlov* †1808 Russ. nobleman who started the breed] : a Russian breed of trotting horses evolved by interbreeding Dutch, Frisian, and Arabian horses and including a large heavy harness horse that is usu. black and a lighter speedier horse that is commonly gray and is sometimes used for racing

Or·lon \'ȯr,län, 'ȯ(ə),l-\ *trademark* **1** — used for an acrylic fiber made in filament or staple form, characterized often by its high bulk and soft warm hand, used esp. in bulky suitings, in knitted goods, and because of its resistance to sunlight in curtains and awnings, and often blended with other fibers in fabrics **2** : a yarn or fabric made of Orlon fiber

or·lop deck \'ȯr,läp-\ *n* [*orlop* fr. ME *overlop* deck of a single-decker, fr. MLG *overlōp*, lit., something that overleaps, fr. *over* + *lōp* leap, fr. *lōpen* to leap, run; akin to OHG *ubar* over and to MD *lōpen* to run — more at OVER, LEAP] **1** : the deck below the lower deck : the lowest continuous deck in a ship having more than three decks — see DECK illustration **2** : the lowest deck in a ship

or·mer \'ȯrmər\ *n* -S [F dial. (Isle of Guernsey), prob. fr. *or-* (fr. L *auris* ear) + *mer* sea, fr. L *mare*; fr. the shape of the shell — more at EAR, MARINE] : ABALONE

or·mo·lu \'ȯ(r)mə,lü\ *n* -S *often attrib* [F *or moulu*, lit., ground gold] **1** *archaic* : gold ground for use in gilding; *also* : metal gilded with ground gold **2** : a brass made to imitate gold and used in mounts for furniture and for other decorative purposes — called also *mosaic gold* **3** : something pretending to more than its real value or quality : something showy rather than genuine (some ~ vocal numbers —Nat Hentoff) ⟨fiction relating inordinate and ~ violence —*Times Lit. Supp.*⟩

ormolu varnish *n* : a varnish used to give the appearance of gold

or·mo·sia \ȯ(r)'mōzh(ē)ə\ *n, cap* [NL, fr. Gk *hormos* chain, necklace + NL *-ia*; fr. the use of its berries as beads — more at SERIES] : a genus of shrubs and trees (family Leguminosae) chiefly of So. America and Central America with pink to reddish wood — see JUMBY BEAN, NECKLACE TREE

¹or·na·ment \'ȯ(r)nəmənt\ *n* -S [ME *ornament*, *ornement*, fr. OF *ornement*, fr. L *ornamentum*, fr. *ornare* to furnish, embellish + *-mentum* -ment — more at ORNATE] **1** *archaic* : a useful or object used in a church service **2 a** : something that lends grace or beauty : a decorative part or addition : a structural component or applied detail that embellishes ⟨the profiles and the carved ~s of the moldings —D.S.Robertson⟩ **b** : a manner, quality, or trait that adorns or beautifies ⟨the various devices of poetical ~ —*Encyc. Americana*⟩ **3** : a person whose virtues or graces add luster to his place, time, or society ⟨the greatest teachers and ~s of our species —T.L. Peacock⟩ ⟨the greatest mathematician of his age and an ~ of the academies of Berlin and St. Petersburg —Paul Koelner⟩ **4** : the act of adorning or beautifying : DECORATION, ORNAMENTATION ⟨indulged in excessive ~⟩ **5** : an embellishing note or notes (as a trill, appoggiatura, mordent) not belonging to the essential musical harmony or melody and indicated by the composer or esp. in the 16th to 18th centuries introduced by the performer for a decorative effect : GRACE — called also *embellishment*, *fioritura*

²or·na·ment \-,mənt, -,mənt\ — *see* ²-MENT\ *vt* -ED/-ING/-S : to provide with ornament : DECORATE, EMBELLISH ⟨touched nothing that he did not ~ with his learning and injure with his theories —Harvey Graham⟩ *syn* see ADORN

¹or·na·men·tal \ˌȯ(r)nə¦mentᵊl\ *adj* : having decorative quality or value ⟨encourages the useful rather than the ~ public virtues —Ellen Glasgow⟩ — **or·na·men·tal·i·ty** \ˌ=ˌ=mən'talədē, -ˌmen-, -ləd-ē, -i\ *n* -ES — **or·na·men·tal·ly**

decorates

or·na·ment·ist \-,mentəst\ *n* -S : one who designs ornaments

ornaments rubric *n* : a rubric concerning objects used in ... Elizabeth I directing ... the second year of the reign ...

ornary *var of* ORNERY

¹or·nate \(ˌ)ȯr'nāt, (ˌ)ō(ˌ)ə-\ *adj* [L *ornatus*, past part. of *ornare* to furnish, *ordinare* to order, arrange — ...] by elaborate rhetoric or ... satisfactorily translated ... (is clear and simple rather ... *Lit. Supp.*⟩ **2** : elaborately ... decorated ⟨the most ~ ... churches —Lewis Mumford⟩ ...

syn ORNATE, ROCOCO, BAROQUE mean, in common, elaborately ... orated or designed. ORNATE ... adorned or ornamented ... extremely *ornate* gingerbread ... and nineties, when fanciful ... brackets were in vogue —*Amer* ... and *ornate* rituals —A.M.Young ... with hand-carved woodwork, ... fireplaces, and imported rugs ... ⟨a prose simple or *ornate* as the ... Pedeп⟩ ROCOCO, applying origi... fanciful 18th century French ... any similarly elaborate decora... of design (as of furniture, ... liferating curves and scrolls, ... ness and often extending to ... elaborately decorated ⟨the lion ... plush and whorled designs in gol... fragments, white and disassocia... half-turned head of a matron-st... Barnes⟩ ⟨the extreme refinement ... taste is a little saccharine, a li... of something meretricious ... Whipple⟩ ⟨doesn't mind getting ... phrase or an overstuffed image —... BAROQUE, often loosely interchan... a style of architecture prior to ... extravagant massive strength, ... tive quality, stressing the ingeni... torted, often in overintricate ... style, it has been called by critic... sumptuousness, this glittering ... perversity —Claude Vigée⟩ (a ... invention, richly variegated and ... surprises —*Times Lit. Supp.*⟩ (... vehemence, its exhibitionistic forc... its arbitrary twisting and distort... denaturalizing of living speech: ... strained mannerisms and calculate... ⟨poetry is *barogue*. Baroque is t... It is elemental. It demands depth ... FLAMBOYANT can suggest an orna... excess of color or bold, daring, ... for *flamboyant* clothes, including ... of *flamboyant* egotism, given to ... absurdities of prose —*New Yorker* ... gestures and exaggerated strutti... worker's reaction was characteriz... ness than a *flamboyant* enthusia... suggests an overelaboration of ... ornamental flourish, and so or... conspicuous embellishment ⟨she ... costume, fix the gold circlets into ... the garish imitation topaz onto ... Fifield⟩ ⟨*florid* oriental imagery ... verbiage —H.G.Wells⟩ ⟨contrast ... these gardens was the exotic, *flori*... table stands —*Buick Mag.*⟩

²ornate *vt* -ED/-ING/-S [ME *ornate* ... of *ornare*] *obs* : ADORN

ornate aphid *n* : an aphid (*Myzus* ... in northern Europe and now est... is a pest of numerous plants

or·nate·ly *adv* [ME *ornatly*, fr. *o*... ornate manner

or·nate·ness *n* -ES : the quality or

or·na·ture \'ȯrnəˌchu(ə)r, -ˌchər\ ... ornament, fr. L *ornatus*, past part. + ...

or·neri·ness \'ȯ(r)nə(ə)rēnəs, 'ən(... *-ness*] : bad temper : PERVERSITY

or·nery *or* **on·ery** *or* **or·na·ry** \'ȯ... *adj, often* -ER/-EST [alter. of *ordin*... inferior quality : COMMON **b** : LAZ... a touchy disposition : inclined to ... TANKEROUS ⟨he's been ~ all day⟩ ... and threw anybody that tried to ... and individualistic sometimes to the ⟨Yankees are an ~ lot, but they're ... CONTRARY

ornify *vt* -ED/-ING/-ES [L *ornare* t... : ADORN

or·nis \'ȯrnəs, 'ō(ə)n-\ *n, pl* **orni-** ... fr. Gk, bird] : the birdlife of a regi...

-ornis \"\ *n comb form, pl* **-ornith-** ... fr. Gk *ornis*— more at ERNE] : bird (E...

ornith- *or* **ornitho-** *comb form* [L, ... : bird ⟨*ornithi*chnite⟩ ⟨*ornitho*graph...

or·nith·ic \(ˌ)ȯ(r)'nithik\ *adj* [Gk ... *-ikos* -ic] : of, relating to, or chara...

or·nith·ichnite \,ȯ(r)nəth+\ *n* [*o*... sil footprint of a bird

or·ni·thine \'ȯ(r)nəˌthēn\ *n* -S [I... *acid*] + *-ine*] : a crystalline or ... $H_2N(CH_2)_3CH(NH_2)COOH$ form... hydrolysis of arginine (as by argina... by reaction with ammonia and carb... and then arginine; *α, δ*-diamino-va...

or·nith·is·chia \,ȯ(r)nə'thiskēə\ *n* ... *-ischia* (fr. Gk *ischion* hip joint) ... order of archosaurian reptiles com... saurs with tetraradiate pelves and ... forms (as the armored dinosaurs of ... and Ankylosauria and the horned ... Ceratopsia) — **or·nith·is·chi·an** \...

or·nitho·ceph·a·lus \,ȯ(r)nəˌ(ˌ)thō... *cap* [NL, fr. *ornith-* + *-cephalus*] : best known genus of pterodactyls (ty... cephalidae)

or·nitho·cop·ros \-'käprəs, -ˌprȯs\ ... Gk *kopros* dung — more at COPR-] : ...

or·nith·o·delph \ȯ(r)'nithəˌdelf\ ... \ˌ=ˌ='delfēən\ *n* -S [*ornithodelph* ... *ornithodelphian* fr. NL *Ornithodelp*... TREME

or·nith·o·del·phes \ˌ=ˌ='del(ˌ)fēz\ ... \-lfēə\ [NL, fr. *ornith-* + *-delphes* o... womb) — more at DOLPHIN] *syn of* ...

by the passage of an airfoil or propeller (the ~ from the prop tugged at the loose ends of his scarf —Howard Hunt) **d** : the dissipated current or force in the trail of an intellectual or social movement : er hard to know how much . . . is solid accomplishment th last, and how much is the ~ of a wave of opinion —A. oeber) (traveled there in the ~ of the wa —J.R.Walsh) **13** : WASH SALE **14 a** : the upper surface of a member or material when given a slope to shed water : WEATHERING **b** : a structure or receptacle shaped so as to receive and carry off water

³wash \"\ *adj* [*¹wash*] : capable of being washed without injury : WASHABLE (~ fabrics) (a ~ dress) (~ goods)

⁴wash *adj* [perh. alter. (influenced by *²wash*) of *wearish*] *obs* : WASHY, WEAK (their bodies of so weak and ~ a temper —Francis Beaumont & John Fletcher)

wa·sha \'wäshə\ *n, pl* **washa** *or* **washas** *usu cap* **1** : a Chitimachan people of southeastern Louisiana **2** : a member of the Washa people

wash-abil·i·ty \ˌwóshə'bilədē, ˌwäsh-, ˌwóish-\ *n* : the quality or state of being washable

¹wash-able \'wóshəbəl, 'wäsh-, 'wóish-, ÷ 'wórsh- *or* 'wärsh-\ *adj* **1** : capable of being washed without suffering damage or loss of color (a ~ dress) **2** : soluble in water (~ ointment bases —*Amer. Druggist*) (~ ink)

²washable \"\ *n* -S : a fabric or garment that may be washed without injury or change

wash and wear *adj* : of, relating to, or constituting a fabric or garment not needing to be ironed after washing

washaway \'ˌ=ˌ=\ *n* -S [fr. the phrase *wash away*, fr. *¹wash* + *away*] *Brit* : WASHOUT

wash ball *n* : a ball of toilet soap

wash barrel *n* : a barrel in which split mackerel are washed with salt water to extract the blood before salting

washbasin \'ˌ=ˌ=\ *n* : WASHBOWL

washboard \'ˌ=ˌ=\ *n, often attrib* **1** : a broad thin plank fixed along a gunwale or set on the sill of a lower deck port to keep out the sea — called also *washstrake, wasteboard* **2** : BASEBOARD **3 a** : a corrugated rectangular surface (as of zinc or glass) in a wooden frame on which clothes are rubbed in washing **b** : a road or pavement so worn by traffic as to be corrugated transversely **c** : a corrugated surface (as of glass or wood)

washboard 3a

washboiler \'ˌ=ˌ=ə(r)\ *n* : a large metal vessel used for boiling clothes

wash boring *n* : a boring system by which material loosened by a bit is borne to the surface in the annular space between the bit and casing by water forced down through the pipe bearing the bit

wash bottle *n* : a bottle or flask provided with one bent tube passing through the stopper for directing a stream of water on anything to be washed or rinsed and with means for forcing (as by blowing into a second tube passing through the stopper or by squeezing if the bottle is flexible) the water through the tube

washbowl \'ˌ=ˌ=\ *n* : a large bowl for water to wash one's hands and face — called also *washbasin*

wash·brew \'wósh,brü, 'wäsh-\ *n, dial Eng* : oatmeal boiled until gelatinous : FLUMMERY 1a

wash brush *n* : a large brush for applying a wash

wash bulkhead *n* : a bulkhead in a ballast tank to prevent excessive movement of liquid in the tank

washcloth \'ˌ=ˌ=\ *n* : a cloth used for washing one's face and body

wash-colored \'ˌ=ˌ==\ *adj* : colored as if with a wash or watercolor

washday \'ˌ=ˌ=\ *n* : a day regularly set aside (as once a week) for washing clothes (as of a family or institution) (on the evening of the second ~ —Flora Thompson)

wash dirt *n* : earth washed or to be washed for gold : WASHING STUFF

wash-dish \'ˌ=ˌ=, *in sense 2* 'wash,- *or* 'wäsh,-\ *n* **1** : WASHBOWL **2** [so called fr. the motion of its tail resembling the motion of one washing dishes] *dial Eng* : PIED WAGTAIL

wash down *vt* **1** : to move or carry downward by action of water or other liquid; *specif* : to facilitate the passage of (food) down the gullet with accompanying swallows of liquid (bolted a hot dog and *washed it down* with soda) **2** : to wash the whole length or extent of (*washed down* and scrubbed out with disinfectant, making sure that no corners or grooves . . . are missed out —Henry Wynmalen)

washdown \'ˌ=ˌ=\ *adj* [*wash down*] : constructed with provision for washing contents downward (a ~ water closet)

wash drawing *n* : water-color painting in or chiefly in washes esp. in black, white, and gray tones only

washed *past of* WASH

washed-curd cheese \'ˌ=ˌ=\ *n* [*washed*, past part. of *¹wash*] : cheddar cheese in which the curd is washed before being pressed into forms to remove a portion of the whey, lactose, and soluble milk salts and produce a soft body with open texture

washed metal *n* : iron treated so as to remove most of the silicon and phosphorus and not too much of the carbon

washed-out \'ˌ=ˌ=\ *adj* [fr. past part. of *wash out*] **1 a** : faded in color : lacking in brightness or vividness (a very pale, *washed-out* blue —Eden Phillpotts) **b** *of a photographic print* : lacking detail in highlights **2** : depleted in vigor or animation : played out : EXHAUSTED (worked from seven in the morning until noon, and I was limp, *washed-out* —Richard Wright) **3** : ERODED (coal workings line the route in this hilly, *washed-out* section —*Amer. Guide Series: Pa.*)

washed sale *n* : WASH SALE

washed-up \'ˌ=ˌ=\ *adj* [fr. past part. of *wash up*] **1** : ready for the discard : done for : played out (as far as he's concerned, you're a *washed-up* nobody —Albert Morgan) **2** *usu* **washed up** : at the end of an association or activity : ready to call it quits : THROUGH (he was completely *washed up* with his wife . . . he never visited her —Morton Faber) (I'm *washed up* with the rackets —Allan Bruce)

washen *archaic past part of* WASH

¹wash·er \'wóshə(r), 'wäsh-, 'wóish-, ÷ 'wórsh- *or* 'wärsh-\ *n* -S [ME *wassher*, fr. *wasshen* to wash + *-er*] **1 a** : a person who washes; *specif* : a worker who cleans by washing (as clothes, animals, or materials or products in processes of preparation, manufacture, or maintenance) **b** : a machine for washing something: as (1) : a device for removing dirt and soluble impurities from pulp and paper stock (2) : WASHING MACHINE (3) : an apparatus or device for washing photographic materials to remove soluble chemical products (as produced by development or fixing) (4) : an apparatus in which gases are washed : SCRUBBER c (rotary ~*s*) **2** [ME; fr. the motion of its tail resembling the motion of one washing clothes or dishes] *dial Eng* : PIED WAGTAIL **3** : any of various flat thin rings or perforated plates (as of metal or leather) used in joints or assemblies to insure tightness, prevent leakage, or relieve friction — see LOCK WASHER, SPRING WASHER **4** [so called fr. its habit of washing its food before eating] : RACCOON

wash gravel *n* : gravel washed to extract gold

wash-hand \'ˌ=ˌ= *adj, Brit* : designed for use in washing the hands or for holding ut for such purpose (a *wash-hand* basin) (a *wash-hand* sta.

washhouse \'ˌ=ˌ=\ *n* : a h or building used or equipped for washing; *esp* : one for washing clothes : LAUNDRY

washier *comparative of* WASHY

washiest *superlative of* WASHY

washin \'ˌ=ˌ=\ *n* -S [*¹wash* (flow, stream) + *in*] : a permanent twist or warp of an airplane wing such that the tip section has a larger angle of attack than the root section

wash-i-ness \'wóshēnəs, 'wäsh-, 'wóish-\ *n* -ES : the quality or state of being washy

washing *n* -S [ME *wasching*, fr. gerund of *waschen* to wash] **1** : the act or action of one that cleanses with water (gave himself a good ~) (gave the clothes a thorough ~) **2 washings** *pl* **a** : liquid that has been used to wash something **b** (1) : metal (as gold dust) obtained by washing (2) : a place or soil yielding metal or gems under washing **c** : material collected by the washing of a bodily cavity (sinus ~*s*) (throat ~*s*) **3 a** : the action of waves or running water : the erosion or removal of material by running water **b washings** *pl* : material abraded or transported by the action of water **4 a** : the operation of bathing, drenching, or coating with a liquid (as in mining ore) **b** : the act or process of applying a thin coat of paint (as watercolor) **c** : the dipping of fruits (as apples, pears, or plums) in a dilute solution of hydrochloric acid followed by rinsing in water as a means of removing spray residues that might be toxic to humans **5** : a thin covering or coat (a ~ of silver) **6** : clothes or other articles washed or to be washed esp. at one time : WASH (the ~ was hanging in the back garden —J.I. Jones) **7** : the execution of a wash sale

washing bottle *n* **1** : WASH BOTTLE **2** : a bottle for use in washing gases by passing them through liquid contained in it

washing engine *n* : a device much like a beater in which rags are washed by a stream of water and also reduced to threads and fibers

washing machine *n* : a machine for washing; *specif* : a usu. power-driven machine for washing clothes and household linen

washing powder *n* : a powder for washing (as a soap powder or a powder containing a synthetic detergent and alkaline builder)

washing soda *n* : SODIUM CARBONATE a(3)

washing stuff *n* : an earthy deposit containing gold that may be extracted by washing

wash-ing-ton \'wóshiŋtən, 'wäsh-, 'wóish-, -shēŋ- *sometimes* -shənt-, ÷ 'wórsh- *or* 'wärsh-\ *adj, usu cap* **1** [fr. *Washington*, capital city of U.S., after George *Washington* †1799 first president of the U.S.] : of or from the city of Washington, D.C. (a *Washington* legislator) : of the kind or style prevalent in Washington : WASHINGTONIAN **2** *or* **Washington state** *usu cap W & often cap S* [fr. *Washington*, northwestern state of U.S., after George *Washington* †1799] : of or from the state of Washington (*Washington* apples) : of the kind or style prevalent in Washington : WASHINGTONIAN

washington clam *n, usu cap W* : a butter clam (*Saxidomus nuttalliii*)

washington grass *n, usu cap W & often cap G* : a water shield (*Cabomba caroliniana*)

washington handpress *n, usu cap W* [after George *Washington* †1799] : a hand-operated printing press perfected about 1829

¹wash-ing-to-nia \ˌ=ˌ=ˈtōnēə\ *n, cap* [NL, fr. George *Washington* †1799 + NL *-ia*] : a genus of massive fan palms of California and adjacent Mexico having large plicate leaves cut nearly to the middle and often bearing filaments on their margins and a smooth trunk bearing a large shaggy mass of persistent dead leaf remains

²washingtonia \"\ [NL, fr. George *Washington* †1799 + NL *-ia*] *syn of* OSMORHIZA

³washingtonia \"\ [NL, fr. George *Washington* †1799 + NL *-ia*] *syn of* SEQUOIA

¹wash-ing-to-ni·an \ˌ=ˌ=ˈtōnēən\ *adj, usu cap* **1** [George *Washington* †1799 first president of the United States + E *-an*] : of, relating to, or characteristic of George Washington **2** [*Washington*, capital city of U.S.A., or northwestern state of U.S.A. + E *-an*] **a** : of, relating to, or characteristic of Washington, D.C., or the state of Washington **b** : of, relating to, or characteristic of the people of Washington, D.C., or the state of Washington

²washingtonian \"\ *n* -S **1** *cap* : a native or resident of Washington, D.C., or the state of Washington **2** *usu cap* [*Washington* Temperance Society, founded 1840 + E *-an*] : a member of the Washington Temperance Society

wash-ing-to-ni·ana \ˌ=ˌ=ˌtōnēˈanə, -ˈänə, -ˈānə *also* -ēnə\ *n pl, usu cap* [George *Washington* †1799 + E *-ana*] : material (as papers, books, letters, or relics) relating to George Washington

washington lily *n, usu cap W* : a large white-flowered lily (*Lilium washingtonianum*) of the Pacific coast of the U.S. that is widely cultivated for ornament

washington palm *n, usu cap W* : a large fan palm (*Washingtonia filifera*) with many slender filaments hanging from its leaf margins — called also *California fan palm*

washington pie *n, usu cap W* [after George *Washington* †1799] : cake layers put together with a jam or jelly filling

washington plant *n, usu cap W* : FANWORT

washington post *n, usu cap W&P* : an American ballroom dance of the end of the 19th century

washington's birthday *n, usu cap W&B* [after George *Washington* †1799 first president of the United States] **1** : February 22 formerly observed as a legal holiday in most of the states of the U.S. **2** : the third Monday in February observed as a legal holiday in most states of the U.S. — called also *Presidents' Day*

washington thorn *n, usu cap W* [fr. *Washington*, D.C., capital city of the U.S.] : a hawthorn (*Crataegus phaenopyrum*) of eastern No. America that is often cultivated for its bright red fruit and showy autumn foliage

wash-i-ta \'wäsh,ətó\ *adj, usu cap* [fr. Fort *Washita*, Texas] : of or relating to a subdivision of the Comanchean — see GEOLOGIC TIME table

washita stone *n* [fr. *Washita* (*Ouachita*) river, southwest Arkansas] : a porous variety of novaculite used esp. for sharpening woodworking tools

washland \'ˌ=ˌ=\ *n* : land or a stretch of land washed periodically by an overflowing stream

washleather \'ˌ=ˌ==\ *n* **1** : a soft leather usu. made of split sheepskin dressed with oil in imitation of chamois **2** *chiefly Brit* : a piece of washleather or soft cloth used for dusting or cleaning : CHAMOIS (was flicking over the radiator with a ~ —Nicholas Monsarrat)

wash-man \'ˌ=mən\ *n, pl* **washmen** **1 a** : a man who washes clothes **b** : a textile worker who scours cloth during manufacturing **2** : a man who applies wash (as in tinplate making)

wash mill *n* : any of several machines for washing clay, hides, or materials for cement

dirt, soap, chemicals) **2 a** : to (this fabric is *washed out*) **b** : to : EXHAUST (after his recent illnes being) **c** : to cancel out : OFFS of government reduction of its d posits —T.O.Waage) **d** : to elin tory : DISCARD, REJECT; *specif* : date) as failing to qualify **3 a** : the force or action of water (the (the heavy rains *washed out* the r game of the doubleheader was pour) ~ *vi* **1** : to become deple (technicolor makeup . . . *wash* **2** : to fail to meet requirements *specif* : to fail in a course of train **3** : WASH 2a

washout \'ˌ=ˌ=\ *n* -S [*wash out*] in one sedimentary deposit and younger deposit **b** : the washin the bed of a road or railroad by r where the earth is washed away after the storm) **c** : WASH 3d **2** ing or flushing out a container o vice for such process **3 a** : one t pectations or requirements : a tc first really hopeful idea he had re Crofts) (the failures, the drunks, away from themselves —Hugh M **b** : a person (as a flying cadet or c failed out of a course of training failing (as in a course of training twist or warp of an airplane wing a smaller angle of attack than th gency signal given by hand or lar

wash plain *n* : ALLUVIAL PLAIN

wash plate *n* : any of several plate prevent surging of bilge water whe ing : BAFFLE

wash port *n* : FREEING PORT

washpot \'ˌ=ˌ=\ *n* : a pot for washi used outdoors for boiling clothes out there in the yard . . . around a B. Gipson) **b** : a pot containin plates are dipped to be coated in

wash primer *n* : a primer of low no adhesive and protective properties

washrack \'ˌ=ˌ=\ *n* : WASHSTAND 2

washrag \'ˌ=ˌ=\ *n* : a piece of cl : WASHCLOTH

washroom \'ˌ=ˌ=\ *n* **1** : a room (building) equipped with washing TORY 3a **2** : a room in a dyeing washed

wash sale *n* : a prearranged fictitic real change of ownership that is m or to establish a loss for tax purp

washstand \'ˌ=ˌ=\ *n* **1 a** : a piece tures of a table and cupboard and pitcher, basin, or towel) for washir washbowl (as of porcelain) perma wall) and attached to water and dr a garage) having water and draina of vehicles

washstrake \'ˌ=ˌ=\ *n* -S : WASHBOA

wash-tail \'wósh,-, 'wäsh,-\ *n* [so motion of its tail] *dial Eng* : PIED

washtray \'ˌ=ˌ=\ *n* : LAUNDRY TRA

washtrough \'ˌ=ˌ=\ *n* : a trough : BUDDLE

washtub \'ˌ=ˌ=\ *n* : a tub in which washed

wash up *vi* **1** : to wash one's face a the dishes after a meal (went straigh was *washing up* —D.H.Lawrence) washing (*wash up* the spilled milk) we've *washed up* that subject —Phi *washed* him *up* as a heavyweight co

washup \'ˌ=ˌ=\ *n* -S [*wash up*] **1 a** : ing clean (thorough ~*s*, sterilizatio *periment Station Record*) (presses product would be lousy beyond c **b** : the act or process of washing or

wash-way \'wósh,-, 'wäsh,-\ *n, dial E* covered by running water

washwheel \'ˌ=ˌ=\ *n* : a smooth or fl which clothes or other fabrics are w

washwoman \'ˌ=ˌ==\ *n, pl* **washwor**

washwork \'ˌ=ˌ=\ *n* : WASH DRAWIN

washy \'wóshē, 'wäsh-, 'wóish-, -sh *adj* -ER/-EST [*²wash* + *-y*] **1 a** *obs* : WATERY (they . . . on the ~ ooze o Milton) **b** : easily eroding or washir (a ~ hillside) **2 a** : lacking in substa THIN, WATERY (~ tea) **b** : deficient of color : PALLID (these strong earth of the cherry blossoms . . . and leav —Anthony West) (a ~ pink or red —E.H.M.Cox) **c** : lacking in vigor, ness (keeping one foot in a sort of ~ Mackenzie) **3** *obs* : lacking in mor character : FRIVOLOUS, LOOSE **4 a** *of* ing in condition and in firmness of fle scour or sweat profusely on slight e horse) **b** : tending to produce flabb mals (~ grass) (~ feed)

was·n't \'wəzᵊn(t), 'wäz- *also* 'wóz-; *dial* 'wänt\ [by contr.] : was not

¹wasp \'wäsp, 'wósp\ *n* -S [ME *waspe*, akin to OHG *wafsa*, *wefsa* wasp, Lith *vapsa* gadfly, L *vespa* wasp, OE *wefan* to weave — more at WEAVE] **1 a** : any of numerous winged hymenopterous insects that generally have a slender smooth body with the abdomen attached by a narrow stalk, well-developed wings, biting mouthparts, and in the females and workers a more or less formidable sting, that belong to many different families and include forms of social as well as of solitary habits, and that are largely carnivorous and often provision their nests with caterpillars, insects, or spiders killed or paralyzed by stinging on — compare SPHECOIDEA, VESPOID NET, YELLOW JACKET; BEE **b** : any of insects (as a chalcid fly or ichneumor are parasitic esp. on other insect larvae **b** : something that stings or infuriates

²wasp \"\ *n* -s *usu cap* [*Women's Air*